

A NEW SPECIES OF PERLODES FROM THE WHITE MOUNTAINS, NEW HAMPSHIRE (FAMILY PERLIDAE; ORDER PLECOPTERA).

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On July 3rd, 1933, while engaged in collecting alpine insects in Tuckerman's Ravine, high up on the southeast side of Mount Washington, New Hampshire, Mrs. Alexander discovered a single male specimen of a large subapterous stone-fly. Since marked brachypterism in the family had been reported only in Western American members of the genus *Perlodes* Banks and in a single species of *Perla* Geoffroy (*languida* Ndm. and Clsn., of Montana and Wyoming), I was particularly interested in the specimen. A careful search failed to reveal more material of this species.

The individual mentioned was found resting on a boulder in the center of a turbulent mountain torrent immediately below the melting edges of the miniature glacier that annually forms in the Ravine. The fauna and flora at that date corresponded nearly to mid-May or even earlier at the foot of the mountain and various parties of athletes were engaged in skiing over the great expanses of snow and ice still persisting in the Ravine.

Very naturally, I at first believed that the specimen represented the still unknown male sex of *Perlodes slossonae* Banks, described from a female taken in this same general area (White Mountains, New Hampshire; Type No. 11,308, Museum Comparative Zoology) but a critical comparison of the material with published descriptions, and especially a survey of the degree of brachypterism found in the American species of *Perlodes* indicates that it is highly improbable that the present male can be definitely associated with the female of *slossonae*.

A tabulation of various measurements, especially of total wing-expanse and length of the fore wing, where this is known, of various North American species of *Perlodes* is here provided.

Species	Wing- expanse ♂	Wing- expanse ♀	Length, fore-wing
<i>americana</i> Klap.	24 mm.	34-37 mm.	
<i>bradleyi</i> Smith	32 mm.*	37 mm.	♂, 15 mm.
<i>dolobrata</i> Smith	33 mm.	44 mm.*	♀, 21 mm.
<i>ignota</i> Smith .....	.....	29 mm.	

Species	Wing- expanse ♂	Wing- expanse ♀	Length, fore-wing
<i>irregularis</i> Banks	32 mm.	48 mm.	
<i>lineata</i> Smith		34 mm.	
<i>margarita</i> n. sp.	12 mm.	.....	♂, 4.2 mm.
<i>minor</i> Klap. ....	.....	32 mm.	♀, 14 mm.
<i>signata</i> Hagen	18-30 mm.†	42 mm.	♀, 18 mm.
<i>slossonae</i> Banks .....	.....	30 mm.	♀, 13 mm.

* Discrepancy in published data between length of fore-wing and total wing-expanse; width of thorax at point of wing-insertion equals from 4 to 6 mm.

† Minimum figure represents extreme of brachypterism in species.

It will be seen from the above tabulation that brachypterism is a prevalent condition in the genus and is invariably more marked in the male sex. As a rule, the fore wing in the male is from 3 to 6 mm. shorter than in the associated female, reaching an extreme in certain individuals of species such as *irregularis* and *signata*. The chief distinctions between the present fly, *margarita* n. sp. (male) and *slossonae* (female), besides the unusual degree of difference in wing size and conformation, lie in the coloration, especially of the legs, cerci and abdomen, and in the tendencies of wing-venation. Miss Smith's figure of *inornata* (Smith),¹ which is placed as a strict synonym of *slossonae* by Needham and Claassen,² shows an unusual scarcity of crossveins in cells *M* and *Cu*₁, in fact, almost the extreme as yet found in the American species of the genus (in fore wing, female, only one or two in either of these cells). In *margarita*, this field of the wing is unusually complicated, not merely by numerous crossveins but by supplementary longitudinal elements, that produce a highly complicated network in these two cells; moreover, the crossveins in the outer radial field are fewer in the present fly but this would almost certainly be explainable by the unusual shortness and truncation of this area of the wing.

A second species that must be compared with the present fly is *minor* (Klapalek),³ still known only from a unique pair taken in "Arctic America" but which, in company with numerous other Arctic American types of insects, may well be found far to the south on the arctic island constituted by the higher portions of Mount Washington. This latter species is quite differently colored and has the male hypopygium of distinct conformation.

¹ Trans. Amer. Ent. Soc., 43, pl. 34, fig. 62; 1917.

² Plecoptera No. Amer. p. 59; 1925.

³ Coll. Zool. Selys, 4: 22; 1912.

Perlodes margarita n. sp.

Male.—Length (from tip of labrum to end of abdomen, excluding cerci) about 15 mm.; total expanse of wings, about 12 mm. Fore wing, 4.2×2.2 mm.; hind wing 4×3.6 mm. Cerci about 11 mm.; antenna, about 8 mm.

Antennae dark brown throughout. Head chiefly yellow, the M-shaped darkened area vaguely indicated, more distinct on cephalic portion; median ocellus markedly smaller than the laterals, the latter about as far from one another as the distance of either from eye-margin.

Pronotum wider than long, the anterior angles gently rounded, the posterior angles more obtusely so; general coloration of pronotum obscure yellow, brightest medially, more darkened on posterior border. Legs chiefly obscure yellow, the femora conspicuously striped longitudinally on either side by dark brown; tibiae yellow; tarsi dark brown. Wings dusky, the anal area of hind wing more whitish hyaline. Wings greatly reduced, as shown by the measurements, the fore wing, especially, being very obtuse at apex. Venation distorted, due to reduction in wing size and shape. Crossveins of costal cell of both wings greatly reduced in number, there being only 2 in fore wing, placed immediately before level of cord, these atrophied or nearly so in the hind wing. Sc_2 bending into R exactly at level of cord. Crossveins in outer radial field of fore wing reduced in number to 3 or 4, in hind wing even further reduced. Crossveins in cells M and Cu_1 of fore wing numerous and irregular, cut by secondary longitudinal veinlets to form a network.

Abdominal tergites dark brown, the posterior half of the individual segments slightly paler, the lateral portions with a conspicuous vestiture of rather long yellow setae; sternites more uniformly brownish black. Cerci longer than antennae, the individual segments dark brown outwardly, the narrow basal ring of each paler brown, demarked by narrow yellow transverse lines. Male hypopygium with genital hook of tenth abdominal tergite heavily blackened, especially the cephalic spine; deeply bifid, the outer arm a flattened blade that is slightly dilated outwardly, the apical portion thinner and obliquely truncated; inner arm a glabrous blackened spine, the two arms enclosing a narrow oval notch. Ninth tergite deeply furrowed medially, the adjoining lobes tumid and densely set with setae.

Holotype, alcoholic male, Tuckerman's Ravine, Mount Washington, New Hampshire, at foot of snow field, altitude 4,500 feet, July 3, 1933 (*Mabel M. Alexander*). The wings of right side, together with one antenna and one cercus, have been mounted on a supplementary slide, all preserved in the writer's collection.

I take great pleasure in naming this interesting stone-fly in honor of my wife, Mabel Marguerite Alexander, who collected the type specimen and a host of other new and rare insects in many parts of the United States and Canada.